

What is claimed is:

- 1) A toluate based ester useful as a plasticizer, extender, or diluent in polymer formulations, such as in binders, comprising: a mono- or diester prepared from the reaction of toluic acid or its ester, with ethylene, diethylene, triethylene glycol, butanediol, or other aliphatic diols.
- 2) The toluate based ester of claim 1, wherein said ester is a low viscosity, low volatility liquid at 25° C.
- 3) The toluate based ester of claim 1, wherein said ester has a viscosity of less than about 0.35 pascal second.
- 4) The toluate based ester of claim 1, wherein said toluic ester is an enriched stream of a Witten dimethyl terephthalate process.
- 5) The toluate based ester of claim 1, wherein said toluic ester is methyl-p-toluate.
- 6) The toluate based ester of claim 1, further including tall oil fatty acids or modified tall oil fatty acids.
- 7) The toluate based ester of claim 1, further including canola oil, castor oil, clove oil, coconut oil, corn oil, cottonseed oil, jojoba oil, linseed oil, olive oil, palm oil, peanut oil, safflower oil, sesame oil, soybean oil, or sunflower oil.
- 8) A method of making a toluate-based diluent ester by reacting methyl-p-toluate with ethylene, diethylene, triethylene glycol, butanediol, or other aliphatic diols.
- 9) The method of claim 8, wherein said preparation of said ester is produced from a methyl-p-toluate rich stream from a Witten dimethyl terephthalate process.
- 10) The method of claim 8, wherein said ester is a low viscosity liquid at 25° C.
- 11) The method of claim 8, wherein said ester has a viscosity of < 0.35 Pa.s.

- 12) A composition of a polymer and toluate ester as plasticizer, diluent, or extender.
- 13) The composition of claim 12, wherein said toluate ester is prepared by reacting methyl-p-toluate with ethylene, diethylene, triethylene glycol, butanediol, or other aliphatic diols.
- 14) The composition of claim 12, wherein said toluate ester is modified with long chain hydrocarbon such as tall oil fatty acid and natural oil.
- 15) The composition of claim 14, wherein said tall oil fatty acid includes modified tall oil fatty acid.
- 16) The composition of claim 14, wherein said natural oil is canola oil, castor oil, clove oil, coconut oil, corn oil, cottonseed oil, jojoba oil, linseed oil, olive oil, palm oil, peanut oil, safflower oil, sesame oil, soybean oil, or sunflower oil.
- 17) The composition of claim 12, wherein said polymer is a homopolymer or a copolymer of PVC.
- 18) The composition of claim 17, wherein said toluate ester comprises from about 3 wt. % to about 50 wt. % of the total weight of the composition.
- 19) The composition of claim 12, wherein said polymer is a phenolic resin.
- 20) The composition of claim 12, wherein said toluate ester comprises from about 10 wt. % to about 65 wt. % of the composition.
- 21) A foundry molding composition comprising: sand; either phenol-formaldehyde resin or polyether polyol; polyisocyanate; catalyst; and a low volatility diluent toluate ester.
- 22) The composition of claim 21, wherein said toluate ester is a mono- or diester of toluic acid.

- 23) The composition of claim 21, wherein said toluate ester is modified with long chain hydrocarbon such as tall oil fatty acid or natural oil.
- 24) The composition of claim 23, wherein said tall oil fatty acid includes modified tall oil fatty acid.
- 25) The composition of claim 23 wherein said natural oil is canola oil, castor oil, clove oil, coconut oil, corn oil, cottonseed oil, jojoba oil, linseed oil, olive oil, palm oil, peanut oil, safflower oil, sesame oil, soybean oil, or sunflower oil.